

Serial Number: 10/783,340

Filing Date: February 20, 2004

Title: Process for the Preparation of a Coating, a Coated Substrate, an Adhesive, Film or Sheet

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IN THE CLAIMS

Please replace all prior versions and listing of claims with the following claims listing.

Claim Listing:

1. (Currently amended) A process for preparation of a coating, a coated substrate, a film or a sheet, in which process a coating mixture comprising a one or more a first-reactive system comprising:

Component A comprising:

a polyisocyanate-functional, polyketone-functional, polyepoxide-functional, polyanhydride-functional and/or polycyclic carbonate-functional compound or polymer and

Component B comprising:

a dispersion or fine powder, having a particle size of 0.5 to 200 μ , of a compound containing a reactive hydrogen, which mixture is not or low-reactive at room temperature, is applied onto a substrate at ambient temperature, resulting in a substrate coated with the coating mixture;

~~followed by reacting the compounds mentioned above~~ Component A and the

Component B by elevating the temperature

wherein

the reaction temperature, which is 50 to 300 °C and is maintained for a reaction time of 1 to 20 minutes without a selected additive[[s]], is adjusted to a temperature which is 3-50 °C ~~higher or lower~~ than said reaction temperature in a similar for the same reaction time, by addition of one or more additives to the Component A, the Component B and/or the coating mixture, prior to elevating the temperature ~~or to one of the reactants of the coating mixture prior to the mixing with the other component~~

wherein

the one or more selected additives is selected from the group consisting of 0 to 5 % of water, 0 to 2 % of an acid, 0 to 2 % of a base, 0 to 0.5 % of a metal catalyst, 0 to 20 % of

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a solvent, and in addition 0 to 5 % of an ionic or anionic
surfactant.

2. (Currently Amended) A process according to claim 1, wherein the compound containing the reactive hydrogen is a compound which is crystalline at a temperature below ~~90~~ 30°C.

3. (Currently Amended) A process according to claim 1, wherein the compound containing a reactive hydrogen is a polyhydrazide and/or a polysemicarbazide.

~~Claim 1 of 10/783,165 reads:~~

4. (cancelled)

5. (Currently Amended) A process according to claim 1, wherein the concentration of the additive in the coating mixture, in component A and/or component B, the temperature of the coating mixture, of component A and/or of component B, the sequence of the addition of each the additive[[s]] to one of the coating mixture, to component A and/or component B, addition of an additive to component A and/or to component B prior to the preparation of the coating mixture, and/or the equilibrium time of the additives in the coating mixture or in component A or component B are factors that control the reaction.

6. (Cancelled)

7. (Withdrawn) A process according to claim 1, wherein the reaction is delayed by addition of 0.0001-10 weight % of water and/or acid, amine, polyamine, alcohol or polyol to a dispersion of the compound containing a reactive hydrogen prior to mixing it with the polyisocyanate-functional compound, and a coating is formed at a temperature that is 3-50°C higher than the original temperature.

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8. (Withdrawn) A process according to claim 1, wherein the reaction is delayed by addition of 0.002-0.20 equivalents of a polyisocyanate-functional compound, such as 1,6-hexanediisocyanate, tuluenediisocyanate, 4,4'-diisocyanatocyclohexylmethane, 4,4'-diisocyanatophenylmethane, 3-isocyanatomethyl-3,5,5-trimethylcyclohexylisocyanate, tetramethylxylenediisocyanate, a (triisocyanatoalkyl- or cycloalkyl)-isocyanurate, a diisocyanatoalkyl- or cycloalkyl) uretdion or a isocyanate-functional polyurethane based on said diisocyanates, and/or an aliphatic or aromatic polycarbodiimide and/or an organic solvent, to a dispersion of the compound containing a reactive hydrogen prior to the mixing with a polyisocyanate-functional compound, and a coating is formed at a temperature that is 3-50°C higher than the original temperature.

9. (Withdrawn) A process according to claim 8, wherein the reaction is delayed by addition of 0.002-0.20 equivalents a polyisocyanate-functional compound with a low molecular weight to an isocyanate-functional polymer prior to mixing with the compound containing a reactive hydrogen, and a coating is formed at a temperature of 3-30°C higher than the original temperature

10. (Withdrawn) A process according to claim 1, wherein the reaction is delayed by addition of 0.001-0.20 equivalent of an aldehyde, polyaldehyde, ketone- and or polyketone-functional compound to a dispersion of the compound containing a reactive hydrogen prior to the mixing with a polyisocyanate-functional compound, and a coating is formed at a reaction temperature which is 3-50°C higher than the original reaction temperature.

11. (Cancelled)

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12. (Withdrawn) A process according to claim 1, further wherein the second reactive system comprises on the one hand a ketone, anhydride, epoxide, a polyisocyanate with a different reactivity, a blocked isocyanate and/or a cyclic carbonate function, or the compound with the isocyanate functionality from claim 1, and on the other hand a hydrazide or semicarbazide with a lower reactivity or with a different size, an amine, a hindered amine, chlorinated amine, a polymer protected amine, blocked amine, azetidine, aspartate, carboxyl, aromatic amine, hydroxide and/or melamine function and/or that the other reactive system comprises polysiloxane or melamine functions which are polymerisable by self-condensation, and/or that the first reactive system comprises an unsaturated compound which undergoes an addition polymerization, in which the reactive groups from the second reactive system may be coupled to the compound containing a reactive hydrogen, or to the polyisocyanate-, polyketone-, polyepoxide, polyanhydride, and/or a polycyclic carbonate-functional compound or polymer of the first reactive system or to another compound and

wherein the first reactive system and the second reactive system are essentially reacted as a sequential two step reaction wherein between these reactions the coating is remoulded,

13. (Withdrawn) A process according to claim 12, wherein the second reactive system reacts faster than the first reactive system in the presence of the additive.

14. (Withdrawn) A process according to claim 12, wherein the second reactive system reacts more slowly than the first reactive system in the presence of the additive.

15. (Withdrawn) A process according to claim 11, wherein the pot-life is increased up to at least 14 days.

16. (Withdrawn) Coating, coated substrate, film or sheet obtained by the process according to claim 1.

17 (Withdrawn) A process according to claim 1, wherein a second reactive system is present and both systems are essentially reacted as a sequential two step reaction wherein between these

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reactions the coating is remoulded.

18. (Previously Presented) A process according to claim 3 wherein the compound containing a reactive hydrogen is adipic dihydrazine or carbodihydrazide.